

UNCLASSIFIED
 DEFENSE-WIDE
 FY 2000/2001 RDT&E PROGRAM

EXHIBIT R-1

APPROPRIATION: 0460D Operational Test & Eval, Defense

Date: FEB 1999

Line No	Program Element Number	Item	<u>Act</u>	<u>FY 1998</u>	Thousands of Dollars		<u>FY 2001</u>	<u>S E C</u>
					<u>FY 1999</u>	<u>FY 2000</u>		
1	0605118D8Z	Operational Test and Evaluation	6	16,154	15,311	14,602	14,249	U
2	0605131D8Z	Live Fire Testing	6	13,640	18,934	9,832	9,755	U
		RDT&E Management Support		----- 29,794	----- 34,245	----- 24,434	----- 24,004	
		Total Operational Test & Eval, Defense		----- 29,794	----- 34,245	----- 24,434	----- 24,004	

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

February, 1999

Appropriation: Operational Test and Evaluation, Defense
Budget Activity: 06

Program Element Name: Director of Operational Test and Evaluation
Program Element Number: 0605118D8Z

Cost (\$ in Millions)	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	<u>FY2004</u>	<u>FY2005</u>
Total Program Element Cost	16.154	15.311	14.602	14.249	14.467	14.651	14.916	15.247

A. Mission Description and Budget Item Justification

The Director of Operational Test and Evaluation (DOT&E) is responsible for policy and procedures for all aspects of operational test and evaluation within the Department of Defense (DoD), with particular focus on OT&E that supports major weapon system production decisions. Currently there are approximately 200 Major Defense Acquisition Programs (MDAPs) on the DOT&E oversight list. These MDAPs may not proceed beyond low-rate initial production (LRIP) until adequate operational test and evaluation of the program is completed. This requires early involvement by DOT&E in the planning phase of each program to ensure adequate testing and satisfactory progress through the acquisition milestones toward operational effectiveness, suitability goals and full-scale production. Key elements of the DOT&E's authority for MDAPs include: the approval of Service Test and Evaluation Master Plans (TEMPs) and Service operational test and evaluation (OT&E) plans; assessment of the adequacy of OT&E and the operational effectiveness and suitability of the weapon system; and participation in DoD-wide planning, programming and budgeting activities to highlight test and evaluation capabilities, needs and priorities.

DOT&E also has statutory responsibility for oversight of the Live Fire Test and Evaluation Program within DoD which is budgeted for under Program Element 0605131D8Z (See Section C of this exhibit). The funding shown in this exhibit, as management support of research and development, is budgeted for in Program Element Research Category 6.5.

UNCLASSIFIED

UNCLASSIFIED

Page 1 of 13

(U) FY 1998 Accomplishments:

- Reviewed Service TEMPs and test plans and provided appropriate guidance to ensure test adequacy; observe preparation for, and conduct of, field operational tests; evaluated OT results and reported evaluations to Congress and DoD senior management; and conducted assessments on programs to include evaluation of projected resource requirements and funding levels for OT&E. Programs benefiting from this oversight service included:

Land Warfare Programs: Abrams Tank (M1A2) System Enhancement Program (SEP), Army Tactical Missile System Brilliant Anti-Armor Submunition (ATACMS/BAT), ATACMS-BAT/Pre-Planned Product Improvement (P3I), ATACMS Block IA, Bradley Fighting Vehicle System (BFVS)-A3/M2A3 and M3A3 Program, Chinook (CH-47) Improved Cargo Helicopter (ICH), Close Combat Tactical Trainer (CCTT), Comanche RAH-66, CRUSADER Howitzer & Resupply Vehicle, Enhanced Fiber Optic Guided Missile (EFOG-M), Family of Medium Tactical Vehicles (FMTV), Follow-on-to-TOW Missile System (FOTT), High Mobility Multi-Purpose Light Tactical Vehicle (HMMLTV), Improved Target Acquisition System (ITAS), Javelin Advanced Anti-Tank Weapon System, Joint Surveillance Target Attack Radar System (JSTARS) Common Ground Station (CGS), Kiowa Warrior (OH-58D), Land Warrior, Line of Sight Anti-Tank (LOSAT) Weapon System, Longbow Hellfire Missile System, Multiple Launched Rocket System Upgrade, NBC Reconnaissance System, Sense and Destroy Armor (SADARM), Stinger Reprogrammable Microprocessor II (RMP II) and Tactical Unmanned Aerial Vehicle (UAV)--Outrider.

Naval Warfare Programs: Advanced Amphibious Assault Vehicle (AAAV), Advanced Combat Direction System (ACDS) Block I, Advanced Integrated Electronic Warfare System (AIEWS), Auxiliary Dry Cargo Carrier (ADC/X), Aegis Spy Radar (AN/SPY-1B/D, EDM-4B), AN/SQQ-89 Antisubmarine Warfare Combat System, CH-60 VERTREP Helicopter, Cooperative Engagement Capability (CEC), DDG-51 Burke Class Destroyer, Evolved Sea Sparrow Missile (ESSM), Fixed Distributive System (FDS) and Advanced Deployable System (ADS), Future Sea-Based Tactical Aviation Platform (CV/X), LPD-17 Amphibious Assault Ship, MHC Coastal Mine Hunter, MK-48 Advanced Capability (ADCAP) Torpedo, New Attack Sub (NSSN), Rolling Airframe Missile (RAM), Seawolf Class Nuclear Attack Submarine/Combat System (SSN-21/BSY-2), SH-60 Multi-Mission Helicopter Program, Ship Self-Defense System (SDDS), Standard Missile (SM-2) Block IIIB, Standard Missile (SM-2) Block IV/IVA, Strategic Sealift Ship (SSP), Submarine External Communications System (SubECS), TAGOS/SURTASS Surveillance Ship/ Low Frequency Active (LFA) Sonar, and 21st Century Surface Combatant (SC-21).

UNCLASSIFIED

UNCLASSIFIED

Page 2 of 13

Air Warfare Programs: Advanced Medium Range Air-to-Air Missile (AMRAAM), AH-1 and UH-1 Helicopter Upgrades (4BN/4BW Upgrade), AIM-9X Missile, C-17 Airlift Aircraft, C-130J Cargo Plane, Dark Star Low Observables High Altitude Endurance Unmanned Aerial Vehicle (UAV), F-22 Air Superiority Fighter, F/A-18 C/D Hornet, F/A-18 E/F Hornet, Global Hawk High Altitude Endurance UAV, Joint Air-to-Surface Strike Missile (JASSM), Joint Combat Search and Rescue (JCSAR), Joint Direct Attack Munition (JDAM), Joint Primary Aircraft Training System (JPATS), Joint Standoff Weapon (JSOW), Joint Strike Fighter, Joint Surveillance and Target Attack Radar System (JSTARS) E-8, Predator Medium Altitude Endurance UAV, Sensor Fused Weapon (SFW), Standoff Land Attack Missile---Expanded Response (SLAM-ER), Tactical Aviation Mission Planning System (TAMPS), T-45 Training System, and V-22 Osprey (Joint Vertical Airlift).

Electronic Warfare Programs: Electronic Warfare Programs: AN/APR-39 (all versions) Radar Warning Receiver (RWR) --all upgrades, AN/ALR-56 (all versions) RWR--all upgrades, AN/ALR-69 (all versions) RWR--all upgrades, AN/ALR-67 (all versions--includes AN/ALR-67[V]3 Advanced Special Receiver) RWR--all upgrades, B-1B Bomber Defensive System Upgrade Program (DSUP), EA-6B "Prowler (includes AN/ALQ-99 Tactical Jamming System and AN/USQ-113 Communications Jammer)--all upgrades, F-15 Tactical Electronic Warfare System (TEWS) including AN/ALQ-135 self protection jammer--all upgrades, Integrated Defensive Electronic Countermeasures (IDECM), Suite of Integrated Infrared Countermeasures / Common Missile Warning System (SIIRCM/CMWS), and Suite of Integrated Radio Frequency Countermeasures (SIRFC).

Command, Control, Communications and Intelligence (C3I) Programs: All Source Analysis System (ASAS), Army Global Command and Control System (AGCCS), Army Tactical Command and Control System (ATCCS) Capstone, Base Level System Modernization Phase II (BLSM II), Battlefield Digitization, Broad Area Coverage Image Capability (BACIC), C2 Vehicle, Cheyenne Mountain Upgrade, Combat ID, Combat Survivor Evader Location (CSEL) System, Composite Health Care System (CHCS), Consolidated Space Operations Center (CSOC), Defense Civilian Personnel Data System (DCPDS), Defense Commissary Info System, Defense Medical Logistics Standard Support (MLSS), Defense Commissary Point-of-Sale (POS) System, Defense Fuel Automated Management System (DFAMS), Defense Satellite Communications System (DSCS), Defense Support Program (DSP)/EWS, Depot Maintenance Support system (DMSS), Digital Production System (DPS), Distribution Standard System (DSS), E-2C Hawkeye Airborne Early Warning, E-3A Airborne Warning and Control System (AWACS) Radar System Improvement Program (RSIP), E-6A TACAMO (multiple subprograms), F-15 Fighter Data Link, Forward Area Air Defense System (FAADS) C3I, Global Transportation Network (GTN), High Performance Computing Modification Plan (HPCMP), Integrated Maintenance Data System (IMDS), Joint Computer Aided Acquisition

UNCLASSIFIED

UNCLASSIFIED

and Logistic Support

Page 3 of 13

(JCALS), Joint Engineering Data Management and Control System (JEDMCS/EDMCS), Joint Receiving Information Support System, Joint Service Imagery Processing System (JSIPS), Joint Tactical Information Distribution System (JTIDS), Maneuver Control System (MCS), Material Management Support System (MMSS), Multifunctional Information Distribution System (MIDS), MILSTAR Satellite Communications System, NAVSTAR GPS User Equipment (UE), Navy Standard Integrated Personnel System (NSIPS), Non-Tactical Command Support System (NTCSS), Reserve Component Automation System (RCAS), Space Based Infrared System (SBIS), Standard Installation/ Division Personnel System 3 (SIDPERS3), Standard Procurement System (SPS), Strategic War Planning System (SWPS), Theater Medical Information Program (TMIP), Ultra-High Frequency Follow-On (UFO) Satellite, and Unit Level Logistic System (ULLS).

Strategic Warfare and Space Systems Programs: B-1B Lancer, B-2 Advanced Technology Bomber, Block IV All-Up-Round, Evolved Expendable Launch Vehicle (EELV), Medium Extended Air Defense System (MEADS), National Airspace System (NAS), National Missile Defense (NMD) System, Navy Theater Ballistic Missile Defense (TBMD), Patriot P3I, Patriot Upgrade, Theater High Altitude Area Defense (THAAD), TITAN IV Space Booster, and Tomahawk Block IV / Theater Mission Planning Center (TMPC).

Other Systems: Chemical Demilitarization.

● Perform official travel to carry out DOT&E programmatic oversight of DoD operational testing and evaluation.

(U) FY 1999 Plans:

● Review Service TEMPs and test plans and provide appropriate guidance to ensure test adequacy; observe preparation for, and conduct of, field operational tests; evaluate OT results and report evaluations to Congress and DoD senior management; and conduct assessments on programs to include evaluation of projected resource requirements and funding levels for OT&E. Programs benefiting from this oversight service will include:

UNCLASSIFIED

UNCLASSIFIED

Page 4 of 13

Land Warfare Programs: Abrams Tank (M1A2) System Enhancement Program (SEP), Army Tactical Missile System Brilliant Anti-Armor Submunition (ATACMS/BAT), ATACMS-BAT/Pre-Planned Product Improvement (P3I), Biological-Chemical Programs (Detection/Protection/ Decontamination/C4I), Bradley Fighting Vehicle System (BFVS)-A3/M2A3 and M3A3 Program, Chinook (CH-47) Improved Cargo Helicopter (ICH), Close Combat Tactical Trainer (CCTT), Comanche RAH-66, CRUSADER Howitzer & Resupply Vehicle, Enhanced Fiber Optic Guided Missile (EFOG-M), Family of Medium Tactical Vehicles (FMTV), Follow-on-to-TOW Missile System (FOTT), High Mobility Multi-Purpose Light Tactical Vehicle (HMMLTV), Improved Target Acquisition System (ITAS), Javelin Advanced Anti-Tank Weapon System, Joint Modular Lighter System, Kiowa Warrior (OH-58D), Joint Surveillance Target Attack Radar System (JSTARS) Common Ground Station (CGS), Land Warrior, Line of Sight Anti-Tank (LOSAT) Weapon System, Longbow Hellfire Missile System, Multiple Launched Rocket System Upgrade (MLRS Upgrade), Sense and Destroy Armor (SADARM), Stinger Reprogrammable Microprocessor II (RMP II), and Tactical Unmanned Aerial Vehicle (UAV)--Outrider.

Naval Warfare Programs: Advanced Amphibious Assault Vehicle (AAAV), Advanced Combat Direction System (ACDS) Block I, Advanced Integrated Electronic Warfare System (AIEWS), Auxiliary Dry Cargo Carrier (ADC/X), Aegis Spy Radar (AN/SPY-1B/D, EDM-4B), AN/SQQ-89 Antisubmarine Warfare Combat System, CH-60 VERTREP Helicopter, Cooperative Engagement Capability (CEC), DDG-51 Burke Class Destroyer, Evolved Sea Sparrow Missile (ESSM), Fixed Distributive System (FDS) and Advanced Deployable System (ADS), Future Sea-Based Tactical Aviation Platform (CV/X), LPD-17 Amphibious Assault Ship, Mk 48 Advanced Capability (ADCAP) Torpedo, New Attack Sub (NSSN), Rolling Airframe Missile (RAM), SC-21 21st Century Surface Combatant, Ship Self-Defense System (SSDS), Seawolf Class Nuclear Attack Submarine/Combat System (SSN-21/BSY-2), SH-60R Multi Mission Helicopter, Standard Missile (SM-2) block IIIB and Block IV/IVA, Strategic Sealift Program (SSP), Submarine External Communications System (SubECS), and TAGOS/SURTASS Surveillance Ship/Low Frequency Active (LFA) sonar.

Air Warfare Programs: Advanced Medium Range Air-to-Air Missile (AMRAAM), AH-1 and UH-1 Helicopter Upgrades (4BN/4BW Upgrade), AIM-9X Missile, C-17 Airlift Aircraft, C-130J Cargo Plane, Dark Star Low Observables High Altitude Endurance Unmanned Aerial Vehicle (UAV), F/A-18 C/D Hornet, F/A-18 E/F Hornet, F-22 Air Superiority Fighter, Global Hawk High Altitude Endurance UAV, Joint Advanced Strike Technology (JAST), Joint Air-to-Surface Strike Missile (JASSM), Joint Direct Attack Munition (JDAM), Joint Primary Aircraft Training System (JPATS), Joint Standoff Weapon (JSOW), Joint Strike Fighter (JSF), Joint Surveillance and Target Attack Radar System (JSTARS) E-8,

UNCLASSIFIED

UNCLASSIFIED

Predator Medium Altitude Endurance UAV, Sensor Fused Weapon (SFW), Standoff Land Attack Missile--Expanded Response (SLAM-ER), Tactical Aviation Mission Planning System (TAMPS), T-45 Training System, and V-22 Osprey (Joint Vertical Airlift).

Page 5 of 13

Electronic Warfare Programs: Electronic Warfare Programs: AN/APR-39 (all versions) Radar Warning Receiver (RWR)--all upgrades, AN/ALR-56 (all versions) RWR--all upgrades, AN/ALR-69 (all versions) RWR--all upgrades, AN/ALR-67 (all versions--includes AN/ALR-67[V]3 Advanced Special Receiver) RWR--all upgrades, B-1B Bomber Defensive System Upgrade Program (DSUP), EA-6B "Prowler (includes AN/ALQ-99 Tactical Jamming System and AN/USQ-113 Communications Jammer)--all upgrades, F-15 Tactical Electronic Warfare System (TEWS) including AN/ALQ-135 self protection jammer--all upgrades, Integrated Defensive Electronic Countermeasures (IDECM), Suite of Integrated Infrared Counter-measures / Common Missile Warning System (SIIRCM/CMWS), and Suite of Integrated Radio Frequency Countermeasures (SIRFC).

Command, Control, Communications and Intelligence (C3I) Programs: All Source Analysis System (ASAS), Army Global Command and Control System (AGCCS), Army Tactical Command and Control System (ATCCS) Capstone, Battlefield Digitization, C2 Vehicle, Cheyenne Mountain Upgrade, Combat ID, Combat Survivor Evader Location (CSEL) System, Composite Health Care System II (CHCS II), Defense Civilian Personnel Data System (DCPDS), Defense Medical Logistics Standard Support (DMLSS), Defense Message System (DMS), Distribution Standard System (DSS), E-2C Hawkeye Airborne Early Warning, E-3A Airborne Warning and Control System (AWACS) Radar System Improvement Program (RSIP), E-6A TACAMO (multiple subprograms), F-15 Fighter Data Link, Forward Area Air Defense System (FAADS) C3I, Global Transportation Network (GTN), High Performance Computing Modification Plan (HPCMP), Integrated Maintenance Data System (IMDS), Joint Computer Aided Acquisition and Logistic Support (JCALS), Joint Receiving Information Support System, Joint Service Imagery Processing System (JSIPS), Joint Tactical Information Distribution System (JTIDS), Maneuver Control System (MCS), Multifunctional Information Distribution System (MIDS), MILSTAR Satellite Communications System, NAVSTAR GPS User Equipment (UE), Navy Standard Integrated Personnel System (NSIPS), Non-Tactical Command Support System (NTCSS), Reserve Component Automation System (RCAS), Standard Installation/Division Personnel System 3 (SIDPERS3), Standard Procurement System (SPS), Strategic War Planning System (SWPS), and Theater Medical Information Program (TMIP).

Strategic Warfare and Space Systems Programs: B-1B Lancer, B-2 Advanced Technology Bomber, Evolved Expendable Launch Vehicle (EELV), Medium Extended Air Defense System (MEADS), National Airspace System (NAS), National Missile Defense System (NMDS), Patriot P3I, Patriot Upgrade, Navy Theater Ballistic Missile Defense (TBMD), Theater

UNCLASSIFIED

UNCLASSIFIED

High Altitude Area Defense (THAAD), TITAN IV Space Booster, and Tomahawk Block IV / Theater Missile Planning Center (TMPC).

Page 6 of 13

Other Systems: Chemical Demilitarization.

Implementing the Quadrennial Defense Review (QDR) in Test and Evaluation: This program element was increased by \$2.5 million in FY 1999 by the DoD Program Decision Memorandum (PDM) issued in November, 1997, following the annual DoD Program Review. These funds will be needed by DOT&E for implementing the QDR in test and evaluation. The funding will be for additional technical and analytical support for evaluation of operational testing of (1) U.S. capabilities to deploy National Missile Defense (NMD), (2) new initiatives in Battlefield Digitization (BD), and (3) Chemical and Biological Warfare (CBW) defenses.

The Quadrennial Defense Review (QDR) declared that development of U.S. capabilities to deploy a National Missile Defense (NMD) is a national priority. The NMD program encompasses a new and critical mission area where the most advanced technology will need to function near-flawlessly. The non-traditional development and acquisition approach for NMD significantly increases the evaluation and analysis workload for DOT&E. This non-traditional approach and the number of new component systems to be developed for NMD will require a quantum increase in DOT&E evaluation and oversight responsibilities. That increased activity is needed to assure that each NMD component system satisfies its test objectives while delivering on schedule a capability to counter the anticipated threat. The new initiatives that comprise the Battlefield Digitization (BD) program support the Chairman of the Joint Chiefs of Staff's "Joint Vision 2010". BD is a massive multi-billion dollar command, control, communications and intelligence (C3I) program that directly impacts and affects how the entire Army fights. It will have extraordinary impact on every major dismounted, ground, and airborne platform in the Army's inventory. Using computer systems, BD is designed to integrate digital communications and information management technologies into all such platforms and systems. This will be accomplished using both existing and developmental computers and communications systems that will be expected to fully inter-operate and interface with each other across both tactical and strategic echelons and formations - all highly critical functions for the reliable and timely extension of command-and-control down to the lowest possible echelon. Consequently, the expected improvement via BD in situational awareness and the use of its communications-electronics to transmit and receive orders, plans, reports, and graphic overlay is expected to greatly increase the Army warfighter's abilities in the areas of force effectiveness, lethality, survivability, and operating tempo (OPTEMPO). Also, BD is an exceptionally complex and all-encompassing C3I program that the Army plans to incorporate in its First

UNCLASSIFIED

UNCLASSIFIED

Digitized Division (FDD) in the year 2000 and, subsequently, field to all of its major formations soon after its fielding to the FDD. This makes it imperative that DOT&E be provided the resources required to ensure that necessary and adequate operational test and evaluation (OT&E) will be accomplished to support BD's very ambitious and complex acquisition strategy.

Page 7 of 13

The QDR identified Chemical and Biological Warfare (CBW) by potential adversaries, using unconventional approaches, as one of the key areas of future threat to U.S. military forces. U.S. forces must be properly equipped and trained to operate effectively and decisively in the face of CBW attacks. In pursuit of these goals, DoD has increased planned spending on CBW defense activities by approximately \$1 billion over the program period. To ensure that the systems developed by these programs are ready for use by our servicemen and servicewomen when they are fielded, DOT&E must play a key role in assuring that these systems are operationally effective and suitable. DOT&E's monitoring and assessment of the test and evaluation programs of each of these systems, as they are developed, will require extensive research into the current state of chemical and biological warfare agent detection and identification, with special emphasis on operational testing of this equipment by troops in the field--including tactics, techniques and procedures used by soldiers to operate, maintain and report the results of use of this equipment.

- Perform official travel to carry out oversight of DoD operational testing and evaluation.

(U) FY2000 Plans:

- Review Service TEMPs and test plans and provide appropriate guidance to ensure test adequacy; observe preparation for, and conduct of, field operational tests; evaluate OT results and report evaluations to Congress and DoD senior management; and conduct assessments on programs to include evaluation of projected resource requirements and funding levels for OT&E. Programs benefiting from this oversight service will include:

Land Warfare Programs: Abrams Tank (M1A2) System Enhancement Program (SEP), Army Tactical Missile System Brilliant Anti-Armor Submunition (ATACMS/BAT), ATACMS-BAT/Pre-Planned Product Improvement (P3I), Biological-Chemical Programs (Detection/Protection/ Decontamination/C4I), Bradley Fighting Vehicle System (BFVS)-A3/M2A3 and M3A3 Program, Chinook (CH-47) Improved Cargo Helicopter (ICH), Close Combat Tactical Trainer (CCTT), Comanche RAH-66, CRUSADER Howitzer & Resupply Vehicle, Enhanced Fiber Optic Guided Missile (EFOG-M), Family of Medium Tactical Vehicles (FMTV), Follow-on-to-TOW Missile System (FOTT), High Mobility Multi-Purpose

UNCLASSIFIED

UNCLASSIFIED

Light Tactical Vehicle (HMMLTV), Improved Target Acquisition System (ITAS), Javelin Advanced Anti-Tank Weapon System, Joint Modular Lighter System, Joint surveillance Target Attack Radar System (JSTARS) common Ground Station (CGS), Kiowa Warrior (OH-58D), Land Warrior, Line of Sight Anti-Tank (LOSAT) Weapon System, Longbow Hellfire Missile System, Multiple Launched Rocket System--Improved Fire Control System (MLRS-IFCS), Sense and Destroy Armor (SADARM), Stinger Reprogrammable Microprocessor II (RMP II), Tactical Unmanned Aerial Vehicle (UAV)--Outrider, and UH-60 black Hawk Service Life Extension Program (SLEP).

Page 8 of 13

Naval Warfare Programs: Advanced Amphibious Assault Vehicle (AAAV), Advanced Combat Direction System (ACDS) Block I, Advanced Integrated Electronic Warfare System (AIEWS), Auxiliary Dry Cargo Carrier (ADC/X), Aegis Spy Radar (AN/SPY-1B/D, EDM-4B), AN/SQQ-89 Antisubmarine Warfare Combat System, CH-60 VERTREP Helicopter, Cooperative Engagement Capability (CEC), DDG-51 Burke Class Destroyer, Evolved Sea Sparrow Missile (ESSM), Fixed Distributive System (FDS) and Advanced Deployable System (ADS), Future Sea-Based Tactical Aviation Platform (CV/X), LPD-17 Amphibious Assault Ship, Mk 48 Advanced Capability (ADCAP) Torpedo, New Attack Sub (NSSN), Rolling Airframe Missile (RAM), SC-21 21st Century Surface Combatant, Ship Self-Defense System (SSDS), Seawolf Class Nuclear Attack Submarine/Combat System (SSN-21/BSY-2), SH-60R Multi Mission Helicopter, Standard Missile (SM-2) Block IIIB and Block IV/IVA, Strategic Sealift Program, Submarine External Communications System (SubECS), and TAGOS/SURTASS Surveillance Ship/Low Frequency Active (LFA) sonar.

Air Warfare Programs: Advanced Medium Range air-to-Air Missile (AMRAAM), AH-1 and UH-1 Helicopter Upgrades (4BN/4BW Upgrade), AIM-9X Missile, C-17 Airlift Aircraft, C-130J Cargo Plane, Dark Star High Altitude Endurance Unmanned Aerial Vehicle (UAV), F/A-18 C/D Hornet, F/A-18 E/F Hornet, F-22 Air Superiority Fighter, Global Hawk High Altitude Endurance UAV, Joint Advanced Strike Technology (JAST), Joint Air-to-Surface Strike Missile (JASSM), Joint Direct Attack Munition (JDAM), Joint Primary Aircraft Training System (JPATS), Joint Standoff Weapon (JSOW), Joint Strike Fighter (JSF), Joint Surveillance and Target Attack Radar System (JSTARS) E-8, Sensor Fused Weapon (SFW), Standoff Land Attack Missile--Expanded Response (SLAM-ER), Tactical Aviation Mission Planning System (TAMPS), T-45 Training System, and V-22 Osprey (Joint Vertical Airlift).

Electronic Warfare Programs: Electronic Warfare Programs: AN/APR-39 (all versions) Radar Warning Receiver (RWR)--all upgrades, AN/ALR-56 (all versions) RWR--all upgrades, AN/ALR-69 (all versions) RWR--all upgrades, AN/ALR-67 (all versions--includes AN/ALR-67[V]3 Advanced Special Receiver) RWR--all upgrades, B-1B Bomber Defensive System Upgrade Program (DSUP), EA-6B "Prowler (includes AN/ALQ-99 Tactical

UNCLASSIFIED

UNCLASSIFIED

Jamming System and AN/USQ-113 Communications Jammer)--all upgrades, F-15 Tactical Electronic Warfare System (TEWS) including AN/ALQ-135 self protection jammer--all upgrades, Integrated Defensive Electronic Countermeasures (IDECM), Suite of Integrated Infrared Counter-measures / Common Missile Warning System (SIIRCM/CMWS), and Suite of Integrated Radio Frequency Countermeasures (SIRFC).

Command, Control, Communications and Intelligence (C3I) Programs: All Source Analysis System (ASAS), Army Global Command and Control System (AGCCS), Army Tactical Command and Control System (ATCCS) Capstone, Battlefield Digitization, C2 Vehicle, Cheyenne Mountain

Page 9 of 13

Upgrade, Combat ID, Combat Survivor Evader Location (CSEL) System, Composite Health Care System II (CHCS II), Defense Civilian Personnel Data System (DCPDS), Defense Medical Logistics Standard Support (DMLSS), Defense Message System (DMS), Distribution Standard System (DSS), E-2C Hawkeye Airborne Early Warning, E-3A Airborne Warning and Control System (AWACS) Radar System Improvement Program (RSIP), E-6A TACAMO (multiple subprograms), F-15 Fighter Data Link, Forward Area Air Defense System (FAADS) C3I, Global Transportation Network (GTN), High Performance Computing Modification Plan (HPCMP), Integrated Maintenance Data System (IMDS), Joint Computer Aided Acquisition and Logistic Support (JCALS), Joint Receiving Information Support System, Joint Service Imagery Processing System (JSIPS), Joint Tactical Information Distribution System (JTIDS), Maneuver Control System (MCS), Multifunctional Information Distribution System (MIDS), MILSTAR Satellite Communications System, NAVSTAR GPS User Equipment (UE), Navy Standard Integrated Personnel System (NSIPS), Non-Tactical Command Support System (NTCSS), Reserve Component Automation System (RCAS), Standard Installation/ Division Personnel System 3 (SIDPERS3), Standard Procurement System (SPS), Strategic War Planning System (SWPS), and Theater Medical Information Program (TMIP).

Strategic Warfare and Space Systems Programs: B-1B Lancer, B-2 Advanced Technology Bomber, Evolved Expendable Launch Vehicle (EELV), Medium Extended Air Defense System (MEADS), National Airspace System (NAS), National Missile Defense (NMD) System, Patriot P3I, Patriot Upgrade, Navy Theater Ballistic Missile Defense (TBMD), Theater High Altitude Area Defense (THAAD), TITAN IV Space Booster, and Tomahawk Block IV / Theater Missile Planning Center (TMPC).

Other Systems: Chemical Demilitarization.

- Perform official travel to carry out oversight of DoD operational testing and

UNCLASSIFIED

UNCLASSIFIED

evaluation.

(U) FY2001 Plans:

● Review Service TEMPs and test plans and provide appropriate guidance to ensure test adequacy; observe preparation for, and conduct of, field operational tests; evaluate OT results and report evaluations to Congress and DoD senior management; and conduct assessments on programs to include evaluation of projected resource requirements and funding levels for OT&E. Programs benefiting from this oversight service will include:

Page 10 of 13

Land Warfare Programs: Abrams Tank (M1A2) System Enhancement Program (SEP), Army Tactical Missile System Brilliant Anti-Armor Submunition (ATACMS/BAT), ATACMS-BAT/Pre-Planned Product Improvement (P3I), Biological-Chemical Programs (Detection/Protection/ Decontamination/C4I), Bradley Fighting Vehicle System (BFVS)-A3/M2A3 and M3A3 Program, Chinook (CH-47) Improved Cargo Helicopter (ICH), Close Combat Tactical Trainer (CCTT), Comanche RAH-66, CRUSADER Howitzer & Resupply Vehicle, Enhanced Fiber Optic Guided Missile (EFOG-M), Follow-on to TOW Missile System (FOTT), High Mobility Multi-Purpose Light Tactical Vehicle (HMMLTV), Improved Target Acquisition System (ITAS), Javelin Advanced Anti-Tank Weapon System, Joint Modular Lighter System, Joint Surveillance Target Attack Radar System (JSTARS) Common Ground Station (CGS), Kiowa Warrior (OH-58D), Land Warrior, Line of Sight Anti-Tank (LOSAT) Weapon System, Longbow Hellfire Missile System, Multiple Launched Rocket System Upgrade (MLRS Upgrade), Nuclear-Biological-Chemical Reconnaissance System (NBCRS) Reconnaissance Vehicle, Sense and Destroy Armor (SADARM), Stinger Reprogrammable Microprocessor II (RMP II), Tactical Unmanned Aerial Vehicle (UAV)-Outrider, and UH-60 Black Hawk Service Life Extension Program (SLEP).

Naval Warfare Programs: Advanced Amphibious Assault Vehicle (AAAV), Advanced Combat Direction System (ACDS) Block I, Advanced Integrated Electronic Warfare System (AIEWS), Auxiliary Dry Cargo Carrier (ADC/X), Aegis Spy Radar (AN/SPY-1B/D, EDM-4B), AN/SQQ-89 Antisubmarine Warfare Combat System, CH-60 VERTREP Helicopter, Cooperative Engagement Capability (CEC), DDG-51 Burke Class Destroyer, Evolved Sea Sparrow Missile (ESSM), fixed Distributive System (FDS) and Advanced Deployable System (ADS), Future Sea-Based Tactical Aviation Platform (CV/X), LPD-17 Amphibious Assault Ship, Mk 48 Advanced Capability (ADCAP) Torpedo, New Attack Sub (NSSN), Rolling Airframe Missile (RAM), SC-21 21st Century Surface Combatant, Ship Self-Defense System (SSDS), Seawolf Class Nuclear Attack Submarine/Combat System (SSN-21/BSY-2), Standard Missile

UNCLASSIFIED

UNCLASSIFIED

(SM-2) Block IV/IVA, SH-60R Multi Mission Helicopter, Submarine External Communications System (SubECS), and TAGOS/SURTASS Surveillance Ship/Low Frequency Active (LFA) sonar.

Air Warfare Programs: Advanced Medium Range Air-to-Air Missile (AMRAAM), AH-1 and UH-1 Helicopter Upgrades (4BN/4BW Upgrade), AIM-9X Missile, C-17 Airlift Aircraft, C-130J Cargo Plane, Dark Star High Altitude Endurance Unmanned Aerial Vehicle (UAV), F/A-18 C/D Hornet, F/A-18 E/F Hornet, F-22 Air Superiority Fighter, Global Hawk High Altitude Endurance UAV, Joint Advanced Strike Technology (JAST), Joint Air-to-Surface Strike Missile (JASSM), Joint Direct Attack Munition (JDAM), Joint Primary Aircraft Training System (JPATS), Joint Standoff Weapon (JSOW), Joint Strike Fighter (JSF), Joint Surveillance and Target Attack Radar System (JSTARS) E-8, Sensor Fused Weapon (SFW), Standoff Land Attack Missile--Expanded Response (SLAM-ER), Tactical Aviation Mission Planning System (TAMPS), T-45 Training System, and V-22 Osprey (Joint Vertical Airlift).

Page 11 of 13

Electronic Warfare Programs: AN/APR-39 (all versions) Radar Warning Receiver (RWR)--all upgrades, AN/ALR-56 (all versions) RWR--all upgrades, AN/ALR-69 (all versions) RWR--all upgrades, AN/ALR-67 (all versions--includes AN/ALR-67[V]3 Advanced Special Receiver) RWR--all upgrades, B-1B Bomber Defensive System Upgrade Program (DSUP), EA-6B "Prowler (includes AN/ALQ-99 Tactical Jamming System and AN/USQ-113 Communications Jammer)---all upgrades, F-15 Tactical Electronic Warfare System (TEWS) including AN/ALQ-135 self protection jammer--all upgrades, Integrated Defensive Electronic Countermeasures (IDECM), Suite of Integrated Infrared Countermeasures / Common Missile Warning System (SIIRCM/CMWS), and Suite of Integrated Radio Frequency Countermeasures (SIRFC).

Command, Control, Communications and Intelligence (C3I) Programs: All Source Analysis System (ASAS), Army Global Command and Control System (AGCCS), Army Tactical Command and Control System (ATCCS) Capstone, Battlefield Digitization, C2 Vehicle, Cheyenne Mountain Upgrade, Combat ID, Combat Survivor Evader Location (CSEL) System, Composite Health Care System II (CHCS II), Defense Civilian Personnel Data System (DCPDS), Defense Medical Logistics Standard Support (DMLSS), Defense Message System (DMS), Distribution Standard System (DSS), E-2C Hawkeye Airborne Early Warning, E-3A Airborne Warning and Control System (AWACS) Radar System Improvement Program (RSIP), E-6A TACAMO (multiple subprograms), F-15 Fighter Data Link, Forward Area Air Defense System (FAADS) C3I, Global Transportation Network (GTN), High Performance Computing Modification Plan (HPCMP), Integrated Maintenance Data System (IMDS), Joint Computer Aided Acquisition and Logistic Support (JCALS), Joint Receiving Information Support System, Joint Service Imagery Processing System (JSIPS), Joint Tactical Information

UNCLASSIFIED

UNCLASSIFIED

Distribution System (JTIDS), Maneuver Control System (MCS), Multifunctional Information Distribution System (MIDS), MILSTAR Satellite Communications System, NAVSTAR GPS User Equipment (UE), Navy Standard Integrated Personnel System (NSIPS), Non-Tactical Command Support System (NTCSS), Reserve Component Automation System (RCAS), Standard Installation/ Division Personnel System 3 (SIDPERS3), Standard Procurement System (SPS), Strategic War Planning System (SWPS), and Theater Medical Information Program (TMIP).

Strategic Warfare and Space Systems Programs: B-1B Lancer, B-2 Advanced Technology Bomber, Evolved Expendable Launch Vehicle (EELV), Medium Extended Air Defense System (MEADS), National Airspace System (NAS), National Missile Defense (NMD) System, Patriot P3I, Patriot Upgrade, Navy Theater Ballistic Missile Defense (TBMD), Theater High Altitude Area Defense (THAAD), TITAN IV Space Booster, and Tomahawk Block IV / Theater Missile Planning Center (TMPC).

Other Systems: Chemical Demilitarization.

Page 12 of 13

● Perform official travel to carry out oversight of DoD operational testing and evaluation.

B. Program Change Summary

	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>Total Program</u>
Previous President's Budget Appropriated Value	16.154	15.311	15.182	14.897	NA
Adjustments to Budget Years Since					NA
FY1999 President's Budget			-.580	-.648	
Current Budget Submit/President's Budget	16.154	15.311	14.602	14.249	NA

C. Other Program Funding Summary

Since the passage of the Federal Acquisition Streamlining Act of 1994, DOT&E has had responsibility within the Office of the Secretary of Defense for monitoring and reviewing the live fire test and evaluation (LFT&E) activities of the Department of Defense. In the FY 1997 DoD Appropriations Act, Congress added \$3.0 million for "Alternative Uses of Simulation and Training Technologies". Thus, the current budgeted funding for live fire test oversight is:

UNCLASSIFIED

UNCLASSIFIED

Program Element 0605131D8Z Live Fire Test and Evaluation

Cost (in Millions)	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	<u>FY2004</u>	<u>FY2005</u>
Total Program								
Element Cost	13.640	18.934	9.832	9.755	9.937	10.095	10.276	10.503

D. Acquisition Strategy: NA

E. Schedule Profile

Fiscal Year actual and planned events by quarter

<u>FY1998</u>				<u>FY1999</u>				<u>FY2000</u>				<u>FY2001</u>			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Contract Milestones: (See activities under Part A above.)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)
1999

February,

Appropriation: Operational Test and
Evaluation, Defense
Budget Activity: 06

Program Element Name: Live Fire Test
Program Element Number: 0605131D8Z

Cost (in Millions)	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	<u>FY2004</u>	<u>FY2005</u>
Total Program								
Element Cost	13.640	18.934	9.832	9.755	9.937	10.095	10.276	10.503

A. Mission Description and Budget Item Justification

This program element, 0605131D8Z, directly supports the Congressional statutory requirements for oversight of Live Fire Test and Evaluation (LFT&E). The Federal Acquisition Streamlining Act of 1994 amended Title 10 to transfer, within the Office of the Secretary of Defense, responsibility for monitoring and reviewing the live fire testing activities of the Department of Defense. Responsibility was reassigned from the Director of Test, Systems, Engineering and Evaluation, Office of the Under Secretary of Defense (Acquisition and Technology), to the Director of Operational Test and Evaluation (DOT&E) in FY 1995.

The primary objective of LFT&E is to assure that the vulnerability of DoD crew-carrying weapons platforms and the lethality of our conventional munitions are known and acceptable before entering full-rate production. LFT&E encompasses realistic tests involving actual U.S.

UNCLASSIFIED

and threat hardware or, if not available, acceptable surrogate threat hardware. The objective is to identify and correct design deficiencies early in the development process, and is required to be completed before weapons programs proceed beyond low-rate initial production (LRIP). The LFT&E program is essential, especially in view of the escalating costs of technologically sophisticated weapons systems.

The LFT&E program element also supports the DoD's Joint Live Fire (JLF) program which began in 1984 under a limited charter to test fielded "first line air-to-ground attack aircraft" and to test "the lethality of major caliber anti-armor munitions against first line armored vehicles." When the Congress passed Title 10, U.S. Code, Section 2366, which set forth specific requirements for the LFT&E of systems under development, it appeared that the earlier JLF program might be phased out as newer, tested systems replaced the older systems. This has not worked out as envisioned because:

- some systems not included in the original program will not be retired as early as planned, continuing in service well into the next century, to face new threats.
- later models of the initial systems have entered service and have not been tested in earlier configurations.
- systems are being tasked to perform additional missions and now face new threat environments that could not have been anticipated at the time the original program was envisioned.
- some development programs (e.g., F-117 and ships) have had limited or no LFT&E programs because of programmatic constraints.

In the FY 1997 DoD Appropriations Act, the Congress appropriated an initial \$3.0 million for the Live Fire Testing and Training (LFT&T) program, formalizing an important LFT&E program relationship. The funding strengthens the natural relationship between live fire test activities and the models and simulations being developed to support the Services' testing and training activities. The LFT&T program is directed by a Senior Advisory Group consisting of DOT&E's Deputy Director for Live Fire Test (Chair) and the four Military Service leaders for training technology located in Orlando, Florida. In FY 1998, the Congress appropriated \$4.0 million for continuation and expansion of the program. Again, in FY 1999, the Congress appropriated \$5.0 million for further continuation and expansion of the program. Beyond FY 1999 no funding for the Test and Training program is yet included in the budget, however it will be submitted as a POM Issue topic.

UNCLASSIFIED

UNCLASSIFIED

For FY 1999, the Congress added \$4.0 million to the LFT&E PE for Radio Frequency (RF) Weapon Vulnerability Assessments. The LFT&E Program has been testing and evaluating the on-target effects of potential directed energy weapons (laser and RF) over the past two years. This has been a small but important effort. However, recent technological advances have made such RF weapons more feasible to build and use, enabling major powers and even small rogue factions to potentially apply these types of asymmetric threats (the spending of small sums of money on terrorist weapons/tactics to attack the high technology, high expense weapons of our military forces) against our forces. The Congress has become increasingly concerned about these asymmetric threats to our military systems and supporting infrastructures, and, as a result, is requiring and funding the OSD LFT&E Office to give increased attention to the assessment of the vulnerability of fielded and developmental U.S. systems to these potential emerging threats.

The LFT&E program element also funds other activities used to support the functions of the LFT&E, JLF, and LFT&T programs. The other activities, outlined below, are "Crew Casualty Assessment," "Exploring New Technologies/Advanced Concepts and Survivability Initiatives," and "Assuring Modeling and Simulation." Efforts in those categories are undergoing significant changes during Fiscal Years 1998, 1999, and 2000, as emphasis is being increased in modeling and simulation in support of LFT&E.

LFT&E funding is part of management support of research and development (R&D), as well as R&D of fielded systems, and therefore budgeted in Program Element Research Category 6.5.

(U) FY 1998 Accomplishments

COMPLETED:

Review and Monitor Major T&E Programs: Completed development of the LFT&E Strategies for the CH-47D Improved Cargo Helicopter (ICH), M1A2 (Abrams Tank), Rolling Airframe Missile (RAM) Block 1, Follow-On to TOW (FOTT), M829E3 120mm Armor Piercing Fin Stabilized Discarding Sabot-Tracer (APFSDS-T) tank ammunition, and the XM1001 40mm Canister Cartridge. Approved alternative plans and concurred on LFT&E waiver certifications for CH-47D ICH, MH-47E and MH-60K Special Operations Aircraft (SOA). Reviewed Event Design Plans for M1 Wolverine Heavy Assault Bridge (HAB), Command and Control Vehicle (C2V), M2A3 Bradley Fighting Vehicle System (FVS), Sensor Fuzed Weapon (SFW) P³I, M1 Grizzly Breacher, and F/A-18E/F Super Hornet.

UNCLASSIFIED

UNCLASSIFIED

Reviewed Test Plans for all test programs currently in the execution phase, including V-22 Osprey, Stand-Off Land Attack Missile-Expanded Response (SLAM-ER), M2A3 Bradley FVS, and M1 HAB. Completed LFT&E testing of Sense and Destroy Armor Munition (SADARM), and the Wide Area Munition (WAM) program, with the report to Congress to be completed in FY 1999. Completed LFT&E Testing and Report to Congress for the Army Tactical Missile System (ATACMS) Block 1A, and the M993 7.62mm and M995 5.56mm armor piercing (AP) cartridges.

Review and Monitor Joint Live Fire Programs: Completed testing on the static and dynamic vulnerability of AH-1S helicopter tail rotor gear boxes, drive shafts, and fuel distribution systems, including an assessment of the battle damage and repair techniques on all these components. Provided helicopter damage predictions for all AH-1S components listed above, and completed a special study on the aerodynamic effects of vibrational damage resulting from ballistically damaged rotor blades. Completed all planned testing on the Spirit (classified system) armored target, although additional threat ammunition may become available for further testing against this target.

Crew Casualty Assessment: FY 1998 work was limited to completing reports and applying the lessons learned to the DD-21 Surface Combatants for the 21st Century (SC-21), the DDG-51 Arleigh Burke Class Guided Missile Destroyers, and the Advanced Amphibious Assault Vehicle (AAAV) LFT&E programs.

Exploring New Technologies/Advanced Concepts and Survivability Initiative: Completed the second year of investigation and analysis of results of open-air experiments of High Powered Microwave (HPM) threat technologies used against a variety of classified military equipment. This HPM activity, along with that of other Radio Frequency (RF) weapons, were coordinated with civil organizations such as the Los Angeles Emergency Operations Center. These activities have received significant attention at the Congressional level as demonstrated by the request for testimony before the Joint Economic Committee of Congress and the formal General Accounting Office (GAO) investigation of the potential vulnerabilities of military weapons and civilian infrastructure to RF Weapons.

Assuring Modeling & Simulation Adequacy: Completed a study of physics-based modeling techniques and their application to LFT&E problems. This activity, coordinated with the Department of Energy (DOE) laboratories, produced several technical proposals for improving key modeling capabilities. Completed an update and release of the Target Interaction Lethality and

UNCLASSIFIED

Vulnerability (TILV) Master Plan to support the Technology Area Review and Assessment (TARA) process.

Live Fire Test and Training: Funded continuation of the five projects started in FY 1997 to transition simulation and modeling technologies between the live fire test and evaluation community and the military training communities. The projects include small arms effectiveness, combat trauma patient simulation, lethality/vulnerability simulation enhancements, visual target modeling, and synthetic environment support for live fire test of ground vehicles. Selected and funded three additional projects in FY 1998 that build on results from FY 1997 in visual target modeling, incorporating Battle Damage Assessment and Repair (BDAR) into training, and analyzing feasibility of incorporating virtual reality into Total Ship Survivability Trials (TSST). Established a process for the solicitation, evaluation, and selection of applicable projects for funding in FY 1999. Completed solicitation phase that resulted in receipt of 56 proposed projects for funding consideration for FY 1999. Set up and hosted a two day national conference on Testing and Training Partnerships in Orlando, Florida.

ONGOING:

Review and Monitor Major T&E Programs: Provided oversight on the vulnerability of: the Advanced Amphibious Assault Vehicle (AAAV), the Command and Control Vehicle (C2V), the Crusader System (Self-Propelled Howitzer (SPH) and Resupply Vehicle (RSV)), the M1 Grizzly Breacher, the M1A2 Upgrade (Abrams-FY2000), the M2A3 and M3A3 Bradley Fighting Vehicle System (FVS) (M2/M3) Upgrades, the M1 Wolverine HAB, the Light Tactical Vehicle (LTV), the Line-of-Sight Anti-Tank (LOSAT) weapon system, the AH-1W Helicopter Upgrade, the UH-60L Blackhawk, the Longbow Apache, the Airborne Laser (ABL), the UH-1N Helicopter Upgrade, the B-1B Lancer, the B-2 Spirit, the F-22 Raptor Air Superiority Fighter, the F/A-18E/F Super Hornet, the MH-47E Special Operations Aircraft, MH-60K Special Operations Aircraft, the OH-58D Kiowa Warrior, H-1 Helicopter Upgrades, the CH-60 Helicopter, the SH-60R Multimission Helicopter, the CH-47 Chinook Upgrade, the C-130J aircraft, the Joint Strike Fighter (JSF), the RAH-66 Comanche, the V-22 Osprey Vertical Aircraft, the DD-21 Land Attack Destroyer, the CV(X) Next Generation Aircraft Carrier, the NSSN New Attack Submarine, the SSN-21 Seawolf Class Submarine, the DDG-51 Arleigh Burke Class Guided Missile Destroyer, the Auxiliary Dry Cargo Ship (ADC(X)), and the LPD-17 Amphibious Transport Dock Ship. Provided oversight on the lethality of: the Army Tactical Missile System (ATACMS) Block 1A (APAM) and Block II (BAT), the Longbow HELLFIRE, the M829E3 120mm APFSDS-T, the Multiple Launch Rocket System (MLRS) (Guided Rocket (G-MLRS) and Extended Range Rocket (MLRS-ERR) versions), the XM1001 Cartridge, the Mk48 Advanced Capability

UNCLASSIFIED

UNCLASSIFIED

(ADCAP) Torpedo, the Joint Direct Attack Munition (JDAM), the Medium Extended Air Defense System (MEADS), the Navy Area Tactical Ballistic Missile Defense (TBMD), the Navy Theater Wide (NTW) System, the Follow-On To Tow (FOTT), the Javelin Alternate Main Charge Warhead (AMCW), the Joint Air-to-Surface Standoff Missile (JASSM), the Joint Stand-Off Weapon (JSOW) (BLU-97, BLU-108, and Unitary warheads), the Line-of-Sight Anti-Tank (LOSAT) weapon, the Enhanced Fiber-Optic Guided Missile (EFOG-M), M993 and M995 Armor Piercing Cartridges, the Objective Crew Served Weapon (OCSW), the Objective Individual Combat Weapon (OICW), Sense and Destroy Armor Munition (SADARM), the Sensor Fuzed Weapon (SFW), the Stand-off Land Attack Missile-Expanded Response (SLAM-ER), the Standard Missile Block IVA, National Missile Defense (NMD), the Tomahawk Block IV, the Wide Area Munition (WAM), the Advanced Medium Range Air to Air Missile (AMRAAM), the AIM-9X Sidewinder missile, the Evolved Sea Sparrow Missile (ESSM), the Rolling Airframe Missile (RAM), the Lightweight Hybrid Torpedo (LHT), the Airborne Laser (ABL) system, the Patriot Advanced Capability-3 (PAC-3), and Theater High Altitude Area Defense (THAAD).

Review and Monitor Joint Live Fire Programs: Continued oversight of Joint Live Fire (JLF) armor/anti-armor and aircraft test programs. Analysis of data collected in FY 1997 and FY 1998 continues. Specifically, the analysis of the static versus dynamic testing methodology to determine the vulnerability of AH-1S helicopter engines and transmissions to 1) assess their vulnerability when under load, 2) assess the adequacy of the test procedures followed for evaluating helicopter vulnerability, 3) assess the adequacy of damage models to predict the vulnerability of helicopter components and resulting probability of kills, 4) assess the difference between full-up and component-level testing, and 5) conducted battle damage assessment and repair (BDAR) exercises for actual ballistic impacts into operational aircraft. Started testing Spirit (classified system) and land combat system versus ballistic threats; testing will continue and is expected to be completed in FY 1999. The JLF program started planning a series of ballistic tests (using U.S. munitions) on SCUD B missiles in FY 1997; this effort is expected to continue with actual testing being started in early FY 1999.

Crew Casualty Assessment: The project "Transition of a Combined Toxic Gas Lethality Model to an Injury Model" was continued. Applications of software for crew casualty LFT&E assessments were integrated into the DD-21, DDG-51, and the AAV programs.

Exploring New Technologies/Advanced Concepts and Survivability Initiative: Continued participation in the development of new facilities to explore new technologies such as HPM and directed-energy weapons (DEW). Monitored and participated in an ongoing effort to conduct a

UNCLASSIFIED

UNCLASSIFIED

strategic warhead vulnerability exploitation to gain insights into defeat of strategic missiles in flight. These efforts are restricted to the LFT&E aspects of these technologies, rather than the development of the technology. Many of these programs are jointly funded in concert with the military services' in-house funded efforts. This ensures adequate linkage between the Office of the Secretary of Defense (OSD) and the technical communities such as the Joint Technical Coordinating Group/Munitions Effectiveness (JTTCG/ME), the Joint Technical Coordinating Group/Aircraft Survivability (JTTCG/AS), the Survivability/Vulnerability Information Analysis Center (SURVIAC), and the Joint Live Fire test agencies.

Assuring Modeling & Simulation Adequacy: 1) Continued to actively support Modeling and Simulation (M&S) policy and its integration into test and evaluation (T&E) strategies. 2) Updated the TILV report to support decisions on Research and Development (R&D) funding. The transition of TILV to a structure co-chaired by the Director, Defense Research and Engineering (DDR&E) provides a direct link between the T&E needs identified by the lethality/vulnerability subject matter experts in the services and the R&D prioritization process in OSD. 3) The Safety and Survivability of Aircraft Initiative (SSAI) was shown strong progress in the improvement of the modeling of dry bay fires on aircraft and detailed plans are being developed for next year's activities. Due to uncertainties in Ballistic Missile Defense Office (BMDO) funding for related activities, the assessment of hypervelocity impact assessment started behind schedule. These three initiatives involved the DOE labs, Service labs and test agencies, OSD acquisition elements, and the Institute for Defense Analyses. The development of strategy to extend and coordinate the physics-based modeling activities with other department initiatives such as the High Performance Computing (HPC) Modernization effort, Simulation Based Acquisition (SBA), and BMDO M&S efforts will continue. Integrated Validation, Verification, and Accreditation (VV&A) processes were incorporated into the modeling and simulation efforts for DDG-51 guided missile destroyer, DD-21 land attack destroyer, LPD-17 transport ship, and B-1B bomber.

Live Fire Test and Training: Monitored the progress of five projects that were started in FY 1997. Four of the projects were continued into FY 1998 as well as three new projects started in FY 1998. Evaluated proposed FY 1999 projects for technical merit and possible funding.

UNCLASSIFIED

(U) FY 1999 Plans:

Review and Monitor Major T&E Programs: Complete LFT&E technical assessments for those systems approaching due dates for LFT&E reporting to Congress such as JSOW(BLU-97 warhead), SLAM-ER, WAM, B-1B Lancer CMUP, B-2 Spirit, MH-47E and MH-60K Special Operations Aircraft, RAM, and SH-60B LAMPS. Oversight of continuing efforts in FY 1999 will include the Advanced Amphibious Assault Vehicle, Command and Control Vehicle, the Crusader field artillery system, the M1 Grizzly Breacher, the Light Tactical Vehicle, the M1A2 Upgrade, the M2A3 Bradley FVS upgrade, the M1 Wolverine HAB, the AH-1W Upgrade, the Longbow HELLFIRE, M829E3 120mm APFSDS-T ammunition, the Multiple Launch Rocket System (MLRS) (Guided), the Stinger Reprogrammable Microprocessor (RMP) missile, XM1001 Cartridges, the Mk48 (ADCAP) torpedo, the JDAM weapon, the Medium Extended Air Defense System (MEADS), Navy Theater Wide missile defense, the UH-1N Upgrade, the B-1B Lancer CMUP, the F-22 Raptor, the F/A-18E/F Super Hornet, the Joint Strike Fighter, the OH-58D Kiowa Warrior, the RAH-66 Comanche, the V-22 Osprey, the CV(X) aircraft carrier, the NSSN attack submarine, the SSN-21 submarine, the DDG-51 guided missile destroyer, the LPD-17 transport ship, the ATACMS Block II (BAT), the FOTT, the Javelin AMCW system, the Joint Air to Surface Stand-off Missile (JASSM), the Joint Standoff Weapon (JSOW) (BLU-108 and Unitary warheads), the Objective Crew Served Weapon (OCSW), the Objective Individual Combat Weapon (OICW), Sense and Destroy Armor Munition (SADARM), the Sensor Fuzed Weapon (SFW), the Advanced Medium Air-to-Air Missile (AMRAAM), the AIM-9X Sidewinder missile, the Evolved Sea Sparrow Missile (ESSM), the Navy Area Tactical Ballistic Missile Defense System, Patriot Advanced Capability (PAC-3), Theater High Altitude Area Defense (THAAD), the Airborne Laser (ABL) system, the Medium Extended Air Defense (MEADS) System, and the National Missile Defense (NMD) System.

Review and Monitor Joint Live Fire Programs: The F-16 JLF Program will determine the vulnerability to foreign man-portable air defense systems (MANPADS) threats by identifying kill mechanisms and impacts to flight performance. The principal objectives are to, 1) obtain a physical understanding of kinetic energy kill mechanism, 2) identify vulnerable areas for potential reduction techniques, and, 3) collect test data to be used when performing predictive analyses. The F-14 JLF Program will evaluate the vulnerability of its fuel system to gun and missile threats. Additionally, it will collect data to enhance existing analytical models and to aid the operational community in refining tactics and the design community to develop inexpensive hardware changes that will enhance survivability. CH-47D rotor blade tests will start in FY 1999. The advance planning for live fire testing of F-117 and C-130H components and/or subsystems will continue.

UNCLASSIFIED

UNCLASSIFIED

Crew Casualty Assessment: Completion of the four-year project: "Transition of A Combined Toxic Gas Lethality Model to an Injury Model". Begin a project oriented towards investigation of the issues and risks associated with the operational impact of acceleration-induced incapacitation of pilots caused by high performance, dynamic aircraft flight. The research and development will build upon the findings presented during an FY 1997, DOT&E-sponsored acceleration-induced incapacitation symposium and workshop.

Exploring New Technologies/Advanced Concepts and Survivability Initiative: Begin sponsor testing program of contractor supplied passive ullage protective systems. A Broad Agency Announcement will be written to solicit techniques to significantly reduce the risk of explosive fires in fuel tanks as a result of ballistic impact.

Assuring Modeling & Simulation Adequacy: Under the SSAI program, continue to address dry bay fire modeling and incorporate the explosive modeling techniques developed at the National Labs under the TWA Flight 800 effort. Continue hypervelocity impact work to identify and document the applicability of hydrocodes and engineering analysis tools to the problem of assessing intercept lethality. The physics-based modeling initiative will evolve and expand to incorporate elements of other DoD M&S efforts. Working meetings will be arranged to coordinate R&D, DoD HPC, technical support from DOE and Service labs, and acquisition decision needs from developmental testing through operational testing, including LFT&E. These meeting attendees will be of sufficiently high level to develop a Memorandum of Understanding committing the signatories to support a focused effort.

Live Fire Testing and Training (LFT&T): Complete two of the projects under the FY 1998 Program. Continue the other five projects currently underway. Start four projects in the areas of dismounted infantry survivability and lethality, acceleration induced loss of consciousness, LFT&E training opportunities for Battle Damage Assessment, and non-ballistic LFT&T laser threats. Commence solicitation, evaluation and selection process to identify appropriate FY 2000 projects.

Radio Frequency (RF) Weapons Vulnerability Assessment: Conduct an assessment of the requirements, techniques, and effects of testing and evaluation of the vulnerability of U.S. military systems to asymmetric radio frequency (RF) threats. Initiate tests of the vulnerability of a number of military systems to RF weapons of differing wavelengths and power outputs. Both use and damage will be assessed during the testing. This project will not only

UNCLASSIFIED

build on the data that have been collected in other related efforts, but will also begin to assess the vulnerabilities in circumstances that have not been examined to date. Namely, while data have been gathered and evaluated in related contexts, such as Electromagnetic Pulse (EMP) testing, this project will look specifically at the threat from high power, ultra-wideband, short pulse threats, evaluated at combat distances, i.e., outdoors.

(U) FY 2000 Plans:

Review and Monitor Major T&E Programs: Complete LFT&E technical assessments for those systems approaching due dates for LFT&E reporting to Congress. Oversight of continuing efforts in FY 2000 will include the Advanced Amphibious Assault Vehicle, Command and Control Vehicle, the Crusader field artillery system, the M1 Grizzly Breacher, the Light Tactical Vehicle, the M1A2 Upgrade, the M2A3 Bradley FVS upgrade, the M1 Wolverine HAB, the AH-1W Upgrade, the Longbow HELLFIRE, M829E3 120mm APFSDS-T ammunition, the Multiple Launch Rocket System (MLRS) (Guided), the Stinger RMP missile, XM1001 Cartridges, the Mk48 (ADCAP) torpedo, the JDAM weapon, the Medium Extended Air Defense System (MEADS), Navy Theater Wide missile defense, the UH-1N Upgrade, the B-1B Lancer CMUP, the F-22 Raptor, the F/A-18E/F Super Hornet, the Joint Strike Fighter, the OH-58D Kiowa Warrior, the RAH-66 Comanche, the V-22 Osprey, the CV(X) aircraft carrier, the NSSN attack submarine, the SSN-21 submarine, the DDG-51 guided missile destroyer, the LPD-17 transport ship, the ATACMS Block II (BAT), the FOTT, the Javelin AMCW system, the Joint Air to Surface Stand-off Missile (JASSM), the Joint Standoff Weapon (JSOW) (BLU-108 and Unitary warheads), the Objective Crew Served Weapon (OCSW), the Objective Individual Combat Weapon (OICW), Sense and Destroy Armor Munition (SADARM), the Sensor Fuzed Weapon (SFW), the Advanced Medium Air-to-Air Missile (AMRAAM), the AIM-9X Sidewinder missile, the Evolved Sea Sparrow Missile (ESSM), the Navy Area Tactical Ballistic Missile Defense System, Patriot Advanced Capability (PAC-3), Theater High Altitude Area Defense (THAAD), the Airborne Laser (ABL) system, the Medium Extended Air Defense (MEADS) System, and the National Missile Defense (NMD) System.

Review and Monitor Joint Live Fire Programs: Conduct tests of fielded systems not previously tested under Air, Land, or Sea Joint Live Fire (JLF) programs. This fiscal year should see the completion of the fourth phase of testing for helicopters and initiate tests of foreign system acquired for exploitation. Testing of F-14 aircraft will continue, and F-117 and C-130H component and/or subsystem tests are expected to begin.

UNCLASSIFIED

UNCLASSIFIED

Crew Casualty Assessment: Continue the effort toward investigating the issues and potential user casualty risks associated with the operational impact of acceleration-induced incapacitation caused by highly dynamic aircraft flight.

Exploring New Technologies/Advanced Concepts and Survivability Initiative: Continue sponsoring testing of contractor supplied passive ullage protective systems.

Assuring Modeling & Simulation Adequacy: Continue strong emphasis on understanding the application of physics-based modeling and simulations to test programs and the evaluation of their adequacy. Generate resources for continuing SSAI and provide seed funding for other efforts stemming from the LFT&E physics-based modeling workshops. Assure that programmatic focus is maintained in the development and application of M&S tools and that training capabilities are continuously improved to reflect more credible models. Push for a more consistent infrastructure for managing the M&S that supports T&E specifically and the acquisition process in general. In an environment of shrinking resources it is essential to understand the marginal return on M&S investment. There is no methodology or framework being applied to this problem in a consistent way.

Live Fire Testing and Training (LFT&T): Continue projects started in prior years and start new projects to the extent funding allows.

Radio Frequency (RF) Weapons Vulnerability Assessment: Continue the testing of the vulnerability and survivability of U.S. military systems to potential asymmetric RF weapons of differing wavelengths to the extent funding permits.

(U) FY 2001 Plans:

Review and Monitor Major T&E Programs: Complete LFT&E technical assessments for those systems approaching due dates for LFT&E reporting to Congress. Oversight of continuing efforts in FY 2001 will include the Advanced Amphibious Assault Vehicle, Command and Control Vehicle, the Crusader field artillery system, the M1 Grizzly Breacher, the Light Tactical Vehicle, the M1A2 Upgrade, the M2A3 Bradley FVS Upgrade, the M1 Wolverine HAB, the AH-1W Upgrade, the Longbow HELLFIRE, M829E3 120mm APFSDS-T ammunition, the Multiple Launch Rocket System (MLRS) (Guided), the Stinger RMP missile, XM1001 Cartridges, the Mk48 (ADCAP) torpedo, the JDAM weapon, the Medium Extended Air Defense System (MEADS), Navy Theater Wide missile

UNCLASSIFIED

UNCLASSIFIED

defense, the UH-1N Upgrade, the B-1B Lancer CMUP, the F-22 Raptor, the F/A-18E/F Super Hornet, the Joint Strike Fighter, the OH-58D Kiowa Warrior, the RAH-66 Comanche, the V-22 Osprey, the CV(X) aircraft carrier, the NSSN attack submarine, the SSN-21 submarine, the DDG-51 guided missile destroyer, the LPD-17 transport ship, the ATACMS Block II (BAT), the FOTT , the Javelin AMCW system, the Joint Air to Surface Stand-off Missile (JASSM), the Joint Standoff Weapon (JSOW) (BLU-108 and Unitary warheads), the Objective Crew Served Weapon (OCSW), the Objective Individual Combat Weapon (OICW), Sense and Destroy Armor Munition (SADARM), the Sensor Fuzed Weapon (SFW), the Advanced Medium Air-to-Air Missile (AMRAAM), the AIM-9X Sidewinder missile, the Evolved Sea Sparrow Missile (ESSM), the Navy Area Tactical Ballistic Missile Defense System, Patriot Advanced Capability (PAC-3), Theater High Altitude Area Defense (THAAD), the Airborne Laser (ABL) system, the Medium Extended Air Defense (MEADS) System, and the National Missile Defense (NMD) System.

Review and Monitor Joint Live Fire Programs: Conduct tests of fielded systems not previously tested under Air, Land, or Sea Joint Live Fire (JLF) programs. Tests of foreign systems acquired for exploitation will continue. Testing of F-117 and C-130H components and/or subsystems will also continue.

Crew Casualty Assessment: Complete the project towards investigating the issues and risks associated with the operational impact of acceleration-induced incapacitation caused by high dynamics aircraft flight.

Exploring New Technologies/Advanced Concepts and Survivability Initiative: Complete the testing of contractor supplied passive ullage protective systems. Test results will be reported and supplied to participating contractors as well as the services and major airframe manufacturers.

Assuring Modeling & Simulation Adequacy: Emphasis will continue in the area of physics-based modeling and simulation and its close connection to realistic assessment and training. Continue development of consistent approaches to risk evaluation and T&E prioritization based on modeling.

Live Fire Testing and Training (LFT&T): Continue projects started in prior years and start new projects to the extent funding allows.

UNCLASSIFIED

Radio Frequency (RF) Weapons Vulnerability Assessment: Continue the testing of the vulnerability and survivability of U.S. military systems to potential asymmetric RF weapons of differing wavelengths to the extent funding permits.

B. Program Change Summary

	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>Total Program</u>
Previous President's Budget	13.640	9.934	10.352	10.331	NA
Appropriated Value	13.640	18.934			NA
Adjustments to Appropriated Value					
Adjustments to Budget Years Since FY1999 President's Budget			-.520	-.576	
Current Budget Submit	13.640	18.934	9.832	9.755	NA

C. Other Program Funding Summary

DOT&E is responsible for policy and procedures for all aspects of operational test and evaluation (OT&E) conducted within the Department of Defense. The authorization legislation which established DOT&E specifically requires that DOT&E: provide guidance on all OT&E within DoD; report on the adequacy of OT&E resources; approve plans for, monitor, and analyze the results of OT&E conducted for each Major Defense Acquisition Program (MDAP); coordinate operational testing conducted jointly by more than one DoD component; and coordinate joint OT&E programs. Funding for these responsibilities is under Program Element 0605118D8Z, Director of Operational Test and Evaluation, and is as follows:

	Cost (in Millions)							
	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>FY2002</u>	<u>FY2003</u>	<u>FY2004</u>	<u>FY2005</u>
Total Program								
Element Cost	16.154	15.311	14.602	14.249	14.467	14.651	14.916	15.247

UNCLASSIFIED

D. Schedule Profile

Fiscal Year actual and planned events by quarter

FY1998				FY1999				FY2000				FY2001			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Contract Milestones: (See activities under Part A above.)